PAT-NO: JP405051406A

DOCUMENT-IDENTIFIER: **JP 05051406 A**

TITLE: PRODUCTION OF CONJUGATED DIENE POLYMER

PUBN-DATE: March 2, 1993

INVENTOR-INFORMATION:
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NAME COUNTRY
ASAHI CHEM IND CO LTD N/A

APPL-NO: JP03238930

APPL-DATE: August 27, 1991

INT-CL (IPC): C08F004/54, C08F008/00 , C08F036/04

US-CL-CURRENT: 526/137

ABSTRACT:

PURPOSE: To obtain in high efficiency the title polymer with high cis content, giving low solution viscosity, excellent in rubber characteristics and processability, useful for tires, etc., by polymerizing a conjugated diene in the presence of a specific multiple catalyst followed by addition of a specific coupling agent to carry out further reaction.

CONSTITUTION: The objective polymer can be obtained by either bulk polymerization or solution polymerization in a hydrocarbon solvent, of a conjugated diene (e.g. 1,3-butadiene) in the presence of a multiple catalyst composed of (A) an organic compound of rare earth element (e.g. neodymium

2-isopropyl-5- methylhexanoate), (B) an organoaluminum compound such as trimethylaluminum, and (C) a halogen-contg. Lewis acid compound such as methylaluminum dibromide followed by further reaction on addition of a coupling agent selected from esters of carboxylic acid and alcohol or phenol and another kind of esters of carbonic acid and alcohol or phenol (the amount to be used is pref. 0.1-1.0 equivalent based on C-Al bond).

DERWENT-ACC-NO: 1993-112776

DERWENT-WEEK: 200162

TITLE: Conjugated diene! prepn. having improved properties - by bulk or soln. polymerisation of diene(s) in the presence of a catalyst contg. carboxylic acid, organo-aluminium and halogen-contg. Lewis acid cpd., then adding coupling agent

PATENT-ASSIGNEE: ASAHI CHEM IND CO LTD[ASAH]

PRIORITY-DATA: 1991JP-0238930 (August 27, 1991)

PATENT-FAMILY:

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APPLICATION-DATA:

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ABSTRACTED-PUB-NO: JP 05051406A

BASIC-ABSTRACT:

Prepn. comprises (a) polymerising conjugated dienes by bulk polymerisation or soln. polymerisation in hydrocarbon solvents in the presence of catalysts

comprising (1) a cpd. of the formula R1(COOR2)n (I), (2) organic Al cpds. and
(3) halogen-contg. Lewis acid cpds., and (b) adding a coupling agent selected
from (b-1) esters of (i) carboxylic acids and (ii) alcohols or phenols, and
(b-2) esters of (i) carbonic acids and (ii) alcohols or phenols. (3) includes
benzyl chloride, CCl4, Al(Et)2Cl, Al(Me)2Br, Al(Et)Br2, SbCl2 or P2O5. The
coupling agent is obtd. from the acid of a cpd. of formula (I) or R3OCOR4 (II).
The polymerisation is carried out at -40-120 deg.C. In formulae, R1 = 1-10000C
hydrocarbon; and R2-R4 are 1-5000C hydrocarbon.

USE/ADVANTAGE - The polymer has a higher cis-content and narrower molecular wt.
distribution. It is obtd. efficiently. It is used for materials for tyres,
belts, etc. or additives to polystyrenes of ABS resins.

In an example, 600g of cyclohexane contg. 1,3-butadiene was charged under N2
gas atmos. 0.2777 mmols. of neodium 2-isopropyl -5-methylhexanoate, 4.44mmols
of diisobutyl aluminiumhydride and ethylaluminum -sesqueichloride (as Cl/Nd=3)
were added and agitated at 50 deg.C for 2 hrs. 0.38mmols. of butyl trimellitate was added and agitated at 50 deg.C for 1 hr. 10 ml of a mixt.
(consisting of methanol and cyclohexane) contg. (2,6-bis-(t-butyl) -4-mehtylphenol) was added to stop the polymerisation. The polymerisation
mixt. was poured into plenty of methanol to ppte. poly

CHOSEN-DRAWING: Dwg.0/0

TITLE-TERMS: CONJUGATE POLYDIENE PREPARATION IMPROVE PROPERTIES BULK SOLUTION
POLYMERISE DIENE PRESENCE CATALYST CONTAIN CARBOXYLIC ACID ORGANO
ALUMINIUM HALOGEN CONTAIN LEWIS ACID COMPOUND ADD COUPLE AGENT

DERWENT-CLASS: A12 A60

CPI-CODES: A02-A06; A02-A07A; A04-B01A;

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